



# Social Support as Mediator and Moderator of the Relationship Between Parenting Stress and Life Satisfaction Among the Chinese Parents of Children with ASD

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Published online: 9 January 2018

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## Abstract

Although numerous studies have demonstrated that social support affects a range of life experiences, few have examined its moderating and mediating effects. In the current study, 479 Chinese parents of children with ASD (aged 3–18 years) completed the surveys assessing parenting stress, social support and life satisfaction. Results indicated that parenting stress, social support and life satisfaction were significantly related. Moreover, social support both mediated and moderated the influence of parenting stress on life satisfaction. These findings imply that parenting stress and social support are critical indicators of life satisfaction and can serve as basic intervention strategies that promote life satisfaction among Chinese parents of children with ASD.

**Keywords** Chinese parents of children with ASD · Life satisfaction · Parenting stress · Social support

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## Introduction

Autism spectrum disorder (ASD) is a developmental disability that has gained increasing attention during the past several decades in China (Zhang and Spencer 2015). The prevalence of ASD at the national level is unknown, because relevant monitoring systems and relevant epidemiological studies at the national level are not available in China (Wang et al. 2012, 2013). However, it is believed that the number of children in China (aged under 18) who are affected by ASD is actually higher than 1 per 1000 births, which means there are at least 1.3 million children with ASD across the country (Huang 2013; Liu et al. 2016). Therefore, ASD becomes a public health concern in China.

Parenting a child with ASD is challenging not only because of the core symptoms of ASD, comorbid behavioral and physical symptoms, but also because of the tremendously high burden and cost (Silva and Schalock 2012; Hartley et al. 2016). Once a child is diagnosed with ASD, the family have to spend an important amount of time, energy and money in raising their child and setting up appropriate treatment. This is especially the case in China as it does not have a mature social security or welfare system as most Western countries do. Many children with ASD have limited access to professional help in China and parents have to train and educate their children on their own, which can result

in a lot of emotional strain (Huang et al. 2013). Furthermore, families in China having a child with ASD might bear heavy childcare burden and disruption in parents' employment. A recent study conducted on Chinese families found that the mean annual income was only \$10,092 for families of a child with ASD, significantly less than the annual income of \$17,559 for families with a typically developing child, though the mean annual cost of education for a child with ASD was \$9075, significantly higher than \$2855 for a typically developing child (Cidav et al. 2012; Ou et al. 2015). Lack of rehabilitation and education opportunities for children with ASD makes Chinese parents bear enormous psychological pressure, which may cause a series of negative consequences, such as great parenting stress, low life satisfaction and lack of social support. Research has shown that children's problematic behaviors are heavily dependent on family factors, such as parenting stress, parental psychological functioning and marital quality (Liu and Wang 2015). Therefore, it is of significant importance to comprehensively assess the condition of Chinese parents of children with ASD in order to improve their quality of life and promote the child's development (Huang et al. 2014).

## Life Satisfaction

The challenging behavior of children with ASD in public places can be extremely distressing for parents and associated with increased parenting stress, isolation, powerlessness and hostile encounters in the general public (Cantwell et al. 2015; Werner and Shulman 2013). This widespread phenomenon indicates that the life satisfaction of parents of children with ASD needs immediate attention and intervention.

Life satisfaction refers to the cognitive aspect of well-being and feelings about one's life circumstances (Shivers et al. 2016). Parents of children with ASD report poorer psychological well-being as compared to parents of children without ASD and other types of disabilities (Hartley et al. 2016). However, the most recent research on children with ASD in China has focused on the children with little attention given to parents' quality of life (Gong et al. 2015). Most treatments require intensive parental involvement and are behaviorally-based, as are the strategies that are communicated to them, to help them manage their child's challenging behaviors, a study was needed that would look beyond behaviorally-based methods, to ensure that families get help with the wide range of challenges that arise when caring for a child with ASD. This study would focus on factors that impact parent's life satisfaction.

## Parenting Stress

Parenting stress is an adverse psychological reaction to the demands of being a parent. Parenting stress can be generated from a range of factors, such as the child's poor social skills, behavior or attention problems and emotional dysregulation, and parent related factors, such as social isolation, disagreements with one's spouse or grandparents (May et al. 2015; Naomi Ornstein and Alice 2008; Gong et al. 2015). Studies showed that parents of children with ASD reported significantly more stress than parents of children without ASD and other disabilities (Brei et al. 2015; Falk et al. 2014; Naomi Ornstein and Alice 2008). It is well known that parenting stress has a great association with negative outcomes, including parental depression and anxiety, marriage problems, family functioning difficulties and lower parental physical health (Falk et al. 2014; Maxted et al. 2005). High levels of parenting stress can result in a decreased ability to implement important interventions that could benefit their child (Huang et al. 2014). Chinese parents of children with ASD, in particular, are reported to face higher stigma and to experience more internalization and self-blame than parents in the west (Zheng and Zheng 2015). Understanding what contributes to parenting stress will lead to more targeted interventions to support families and their children. It will also help to find ways to mediate or moderate parenting stress to relieve their mental pressure and facilitate positive family functioning (Hayes and Watson 2013).

## Social Support

Social support is defined as the provision of physical, emotional, informational, and instrumental assistance that an individual perceives from their social networks (Cobb 1976; Lu et al. 2015). Social support encompasses a multitude of social interactions with one's spouse, extended family, friends and others (Siklos and Kerns 2006). Previous studies have found that parents of children with ASD in developing countries are under more pressure than those in developed countries, partly due to the lack of a social support system (Xiong et al. 2010). Thus, these parents are more likely to experience a sense of social isolation and prejudice, and they may be more reliant on support from family and friends.

According to Folkman and Lazarus's general model of stress, stress results from the interaction of individuals with their environment, if individuals' living environment is either maladaptive or cannot meet the new demands, the stress will appear or increase (Folkman and Lazarus

1985). Among the multiple factors that decrease stress and increase well-being, social support has received widespread attention, yet a more complex picture of the relationship between social support, parenting stress and life satisfaction in Chinese parents of children with ASD has to be clearly drawn (Tu and Yang 2016). A number of studies have identified social support as a significant predictor of parental mental health. Also, it has been documented that social support is associated with lower parenting stress and higher life satisfaction (Falk et al. 2014; Lu et al. 2015; Gong et al. 2015). However, whether social support can mediate and (or) moderate the association between parenting stress and life satisfaction in parents of children with ASD remains uncovered.

## Aims

Although awareness of ASD has recently increased in China, we still do not know the parenting stress, social support and life satisfaction of families who have a child with ASD, nor do we know the links among these variables.

The first purpose of this study is to investigate the current state of parenting stress, social support and life satisfaction of Chinese parents of children with ASD. The second purpose is to explore the mediating and/or moderating effect of social support on parenting stress and life satisfaction and their association. We hope that our study can provide information that may promote policy makers and professionals to provide better help to families of children with ASD, and to assist parents in their role while improving their wellbeing.

## Methods

### Participants

Participants were 479 Chinese parents of children with ASD all between the ages of 3 and 18, in the Guangdong province of southern China. The inclusion criteria required the parents to have a child with a diagnosis of ASD, which was assessed by a certified doctor using the DSM-IV criteria. We excluded: (i) parents who did not serve as the main care providers at home; (ii) the ASD diagnosis was not clearly confirmed; (iii) parents cannot fill in all the information of the questionnaires independently. The demographic characteristics of participants are further illustrated in Table 1.

### Procedures

The cross-sectional survey was conducted in the Guangdong province, in southern China. Parents of children with ASD were selected from special education schools

**Table 1** Socio-demographic characteristics of the parents and children

Demographic variables	Families of children with ASD (n=479)
Age of parents (mean $\pm$ SD, range)	36.59 $\pm$ 4.76 (26–45)
Age of children (mean $\pm$ SD, range)	6.68 $\pm$ 3.79 (3–18)
Informant	
Mothers	277 (63.1%)
Fathers	202 (36.9%)
Whether only child	
Only child	415 (86.6%)
Has siblings	64 (13.4%)
Marital status	
Married	459 (95.8%)
Separated/divorced	20 (4.2%)
Annual household income RMB	
$\geq$ 300k	45 (9.4%)
200–300k	130 (27.1%)
100–200k	176 (36.7%)
$\leq$ 100k	128 (26.7%)
Educational level	
Graduate or above	75 (15.8%)
Undergraduate	296 (61.8%)
High school or less	107 (22.4%)

and rehabilitation centers. A detailed description of the research as well as the intended use of the results were provided to each parent. The parents were invited to complete a package of questionnaires, including: basic information of the parents and the child, the parenting stress index-short form (PSI-SF), the multi-dimensional scale of perceived social support (MSPSS), and the satisfaction with life scale (SWLS). One parent from each family (either mother or father) was required to individually fill out the package of questionnaires. The questionnaire data was kept confidential so as to protect the anonymity of participants. All participants were volunteers and did not receive any monetary compensation. This study was approved by the Ethics Committee of Guangzhou University.

## Measures

### Brief Demographic Questionnaire and Familial Profiles

Questions were asked about the age, gender, education level, and marital status of the participating parent (either mother or father), as well as the number of children in the family, the age of the child with ASD, and the annual household income of the family.

### Parenting Stress Index-Short Form

The PSI-SF consists of 36-items which are used to measure parenting stress. It includes three factors: parental distress, parent–child dysfunctional interaction and difficult children; and there are 12 items in each factor. The form applies a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The total score ranges from 36 to 180 and high scores on the total scale indicate greater levels of stress (Abidin 1995; Hutchison et al. 2016). The PSI-SF that was applied in a previous study was translated in 1995 and has been widely used in China since then. In this study, the Cronbach's alpha coefficient of PSI-SF was 0.79.

### Multi-Dimensional Scale of Perceived Social Support

The MSPSS is a 12-item questionnaire that consists of three subscales: significant other, family and friends. There are four items in each subscale. The scale applies a 7-point Likert scale (1 = very strongly disagree; 7 = very strongly agree). The total scale ranges from 12 to 84, and high scores equate to a high perception of social support (Zimet et al. 1988). The Chinese version of MSPSS has a high reliability and validity (Zhao et al. 2014; Wang et al. 2013). In this study, the Cronbach's alpha coefficient of MSPSS was 0.84.

### Satisfaction with Life Scale

The SWLS is a 5-item questionnaire. The questionnaire uses a 7-point Likert scale (1 = very strongly disagree; 7 = very strongly agree). The total scale ranges from 5 to 35, with the higher score suggesting more life satisfaction (Diener et al. 1985; Kong et al. 2014). In this study, the Cronbach's alpha coefficient of SWLS was 0.81.

### Statistical Analysis

Statistical analyses were undertaken using the statistical analysis program SPSS 21.0. First, we generated means, standard deviations and a correlation matrix to explore the associations between the variables. Secondly, we analyzed social support as a mediator. Finally, hierarchical multiple regression analysis was conducted to test the moderating

effects of social support on parenting stress, life satisfaction and their relationship. Before testing the moderating effects, we standardized the two predictor variables (parenting stress and social support) to decrease the problems associated with multicollinearity between an interaction term and the main effects. Independent variables were entered in the following order: socio-demographic factors in step 1; PSI-SF and MSPSS in step 2; the interaction of social support  $\times$  parenting stress was added at step 3. All statistical tests were evaluated at the  $p < 0.05$  significance level and constituted two-tailed tests.

## Results

### Spearman Correlation Test

The Spearman correlation test was used to analyze the variables, including parenting stress, social support and life satisfaction (Table 2). The results of the Spearman correlation test showed that the life satisfaction of parents of children with ASD were significantly negatively correlated with their scores on parenting stress ( $r = -0.391$ ,  $p < 0.01$ ) and were significantly positively correlated with their social support ( $r = 0.372$ ,  $p < 0.01$ ), while parenting stress was significantly negatively correlated with social support ( $r = -0.322$ ,  $p < 0.01$ ).

### The Mediation of Social Support on Parenting Stress and Life Satisfaction

We found that social support was a significant mediator explaining the path from parenting stress to life satisfaction. The results of the analysis which tested whether social support mediated the relationship between parenting stress and life satisfaction are shown in Table 3. At step 1, parenting stress predicted life satisfaction ( $\beta = -0.391$ ,  $p < 0.01$ ). At step 2, parenting stress predicted social support ( $\beta = -0.322$ ,  $p < 0.01$ ). At step 3, parenting stress and social support predicted life satisfaction ( $\beta = -0.302$ ,  $p < 0.01$ ;  $\beta = 0.275$ ,  $p < 0.01$ ). These results showed that parenting stress partially mediated the relationship between social support and life satisfaction.

**Table 2** Spearman correlations of the variables

	M	SD	Parenting stress	Social support	Life satisfaction
Parenting stress	100.35	22.723	1		
Social support	55.48	14.457	-0.322**	1	
Life satisfaction	16.86	7.052	-0.391**	0.372**	1

\* $p < 0.05$ ; \*\* $p < 0.01$

**Table 3** Mediation effect of social support on parenting stress and life satisfaction

Step	Dependent variable	Independent variable	B	SE	$\beta$	t
Step 1	Life satisfaction	Parenting stress	-0.121	0.013	-0.391	-9.274**
Step 2	Social support	Parenting stress	-0.205	0.028	-0.322	-7.423**
Step 3	Life satisfaction	Parenting stress	-0.094	0.013	-0.302	-7.075**
		Social support	0.134	0.021	0.275	6.433**

\* $p < 0.05$ ; \*\* $p < 0.01$ 

### Testing the Moderator Effect

Finally, the moderating effects of social support on the relationship between parenting stress and life satisfaction were tested (Table 4). Before testing the moderating effects, the two predictor variables (parenting stress and social support) were standardized to decrease the problems associated with multicollinearity between an interaction term and the main effects. In the hierarchical multiple regression analyses, life satisfaction was listed as a dependent variable and the order of entry of the predictor variables was as follows. At step 1, gender and family annual income were entered in the first level. At step 2, parenting stress and social support were entered in the second level. At step 3, the interaction of social support  $\times$  parenting stress was added. The significant  $R^2$  change ( $\Delta R^2 = 0.008$ ,  $\Delta F = 7.455$ ,  $p < 0.01$ ), indicated a significant moderator effect.

A line chart was also provided to more intuitively show the interaction effect of life satisfaction (Fig. 1). The line chart shows the regression of life satisfaction when parenting stress is high (one standard deviation above the mean) and low (one standard deviation below the mean), with high/low levels of social support. There was a significant negative relationship between parenting stress and life satisfaction when social support was at a high level and gender and family annual income were controlled. In contrast, the relationship between parenting stress and life satisfaction was much weaker when social support was at a low level and gender

and family annual income were controlled. The predictive effect of parenting stress on life satisfaction was stronger among participants with higher levels of social support.

### Discussion

Children with ASD often present a range of unusual, behavioral and emotional problems which can be observed in their restricted repetitive behavior, object use, verbal and nonverbal communication, inattention, impulsivity and hyperactivity (Miranda et al. 2015). Those symptoms make children with ASD appear different from their typical peers, meanwhile the parents experience great stress and challenges which can make it difficult to find the necessary physical and psychic energy to perform parental responsibilities (Hutchison et al. 2016; Jones et al. 2013). Studies revealed that parenting stress had deleterious effects on parents and children, and could influence the development of depression, anxiety, spousal relationship problems and child executive functioning difficulties (Hayes and Watson 2013; Wang et al. 2013).

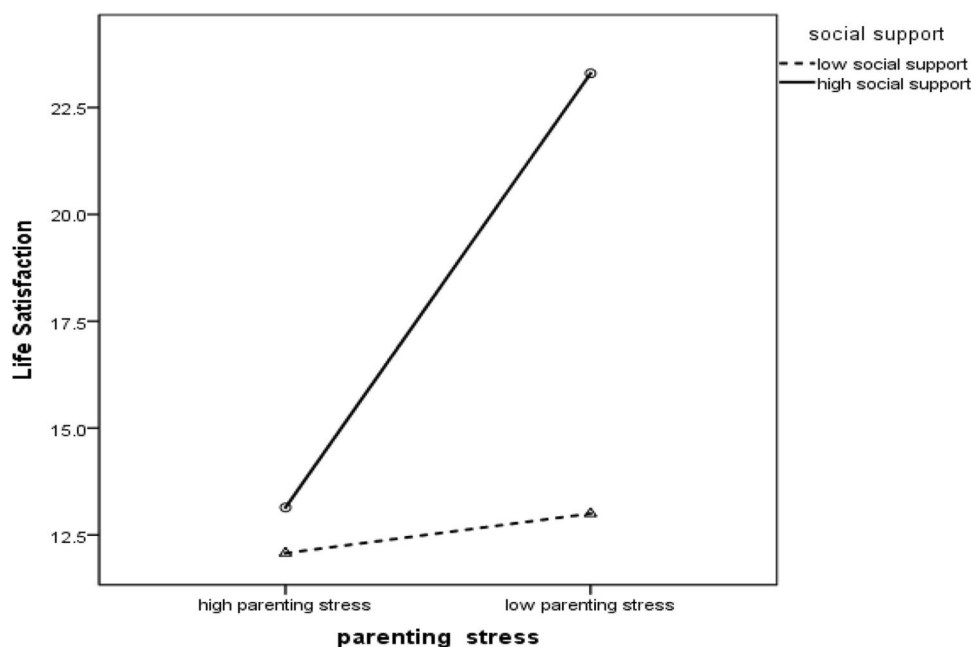
In this current study, we found that the mean score of parenting stress was 100.35, which is higher than 90, the recommended cut-off. This result was consistent with previous studies about the stress of parents who have children with ASD in China (Wang et al. 2013). In this study, the mean scores for the parents' social support and life satisfaction were lower than those of parents who have typically

**Table 4** Multivariate hierarchical regression analysis for life satisfaction

Step	Dependent variable	$R^2$	$\Delta R^2$	$\Delta F$	$\beta$	t
Step 1		0.349	0.344	63.633**		
	Gender of parents				-0.191	-5.534**
	Annual household income					
	$\geq 300$ k RMB				0.134	3.239**
	200–300k RMB				0.387	9.683**
	100–200k RMB				0.397	10.703**
Step 2	Social support	0.458	0.109	47.549**	0.221	6.112**
	Parenting stress				-0.214	-5.932**
Step 3	Social support $\times$ parenting stress	0.467	0.008	7.455**	-0.093	-2.730**

\* $p < 0.05$ , \*\* $p < 0.01$

**Fig. 1** Effects of social support and parenting stress on life satisfaction



developing children, as found in a former study in China (Lu et al. 2015). This indicates that the perceived social support and life satisfaction of parents in this study were at a relatively low level.

Consistent with prior research and our hypothesis, the present study confirmed the associations between life satisfaction, social support and parenting stress. This study found that there is a significant negative correlation between parenting stress and life satisfaction, which means that a high level of parenting stress is associated with low life satisfaction. Given its effects on both parents and children, reducing parenting stress as an early intervention may facilitate familial functioning by restoring balance and well-being. This could also help parents get more social support.

The regression analysis showed that the effect of parenting stress on life satisfaction was partially mediated by social support. When facing challenges and burdens that come with being a caregiver, families of children with ASD may seek different types of social support and resources to cope with stressful situations, which highlights that social support can have a high protective value (Wang et al. 2013). However, many people in China still view mental health and developmental disorders with disdain (Zheng and Zheng 2015). Consequently, the lack of opportunities for social support can further burden the families (Cantwell et al. 2015; Hutchison et al. 2016).

In this study, social support also moderated the influence of parenting stress on life satisfaction. When parents of children with ASD reported a higher level of social support, some indicated a low level of parenting stress and significantly higher life satisfaction scores compared to those with a high level of parenting stress and lower life

satisfaction. However, the groups with low levels of social support exhibited less differences in life satisfaction when they were confronted with low or high levels of parenting stress. The results demonstrate that increasing social support weakens the negative effect of parenting stress on life satisfaction. This finding is likely related to the cultural characteristics of the Chinese parents' living environment. Parents with the higher level of social support (from family, friends, significant others) may easily turn to psychological and physical dependence on others. Consequently, this may decrease their parenting stress and increase their life satisfaction. On the other hand, those parents with the lower level of social support have to bear all the pressures on their own which has generally led to their experiencing low levels of life satisfaction.

In addition, ASD affects many aspects of family life, not only leading to physical and psychological difficulties for parents, but also causing unemployment and great financial burdens (Ou et al. 2015). Studies in China showed that families with ASD children were in desperate need of financial support to gain access to treatment for their children (Wang et al. 2012). It is reported that the burden of raising children with disabilities is the highest in children with ASD (Zheng and Zheng 2015). Therefore, more financial and supportive policies are necessary for families with ASD children.

The findings of this study indicate that enhancing social support might be a great method to reduce the negative effect of parenting stress on life satisfaction. Social support has multiple origins and should be considered in a wider ecological context beyond family, friends and significant others. Due to a lack of understanding of ASD and cultural barriers in China, it is essential to have varied efforts to

more effectively enhance social support. This could aim to increase social awareness, promote social welfare and expand educational material and opportunities. Practitioners and peers can work together to carry out more public activities and help integrate families of children with ASD in society in order to decrease parenting stress and improve their quality of life.

In conclusion, the study found that life satisfaction is significantly predicted by parenting stress and the level of social support. Furthermore, social support both mediates and moderates the relationship between parenting stress and life satisfaction. These findings demonstrate a need for future research and interventions to focus on creating a more positive climate of social support for families of children with ASD in China.

### Limitations

The results and implications of this study should be considered in light of several limitations. Firstly, this was an exploratory cross-sectional design, therefore, no cause–effect inferences can be made. Secondly, the data was collected through self-report questionnaires and largely depends on subjective observation, which may put into question the accuracy of the results. Finally, the results obtained in this study may be related to the particular cultural context. Therefore, caution needs to be taken when extending present findings to parents of children with ASD residing in places elsewhere than in China. It is also important to note that the information about whether the child had any other siblings with ASD was not collected. Future research could pay attention to families of more than one child with ASD.

**Acknowledgments** The authors would like to thank the parents that participated in this study, and are grateful to staff in many schools and rehabilitation centers for their assistance in the data collection. This work was supported by grants from the National Natural Science Foundation of China (Grant No. 81601162), Shanghai Municipal Commission of Health and Family Planning (Grant No. 20164Y0001), and Guangdong Philosophy and Social Science project (Grant No. GD17YJY02). We appreciate Sarah Bilodeau MA from the Essential Learning Group (ELG) for refining the language.

**Author Contributions** MHL participated in study concepts, study design, literature research, data acquisition, and statistical analysis. GHW participated in study concepts, study design, literature research, data acquisition, and statistical analysis. HL participated in study concepts, literature research, data acquisition, and statistical analysis. MLS participated in literature research, data acquisition, and statistical analysis. RZ participated in literature research, data acquisition, and statistical analysis. FJ participated in study concepts, study design, literature research, data acquisition, and statistical analysis.

### Compliance with Ethical Standards

**Conflict of interest** All the authors of this article have no conflict of interest.

**Ethical Standards** All procedures performed in studies involving human participants were in accordance with the ethical standards of Guangzhou University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Research Involving Human and Animal Participants** This article does not contain any studies with animals performed by any of the authors.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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